## REMARKS

Claims 1-38 are all the claims pending in the application, including claims 36-38 added by the present Amendment.

Claims 1-35 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Applicant amends claims 1, 3, 4, 14, 19, and 20 in response to this rejection and submits that the claims as amended overcome the indefiniteness asserted by the Examiner. With regard to claim 17, as recited in the claim, the second reading unit reads a specified detecting light. Applicant submits that this recitation clearly defines the features of the claim, and thus is not indefinite.

Claims 1-6, 11-14, 17-22, and 27-30 are rejected under 35 U.S.C. § 102(b) as being anticipated by Poetsch (GB 2140245 A). Claims 7-10, 15, 16, 23-26, 31, 32, and 33-35 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Poetsch in view of Sugiura et al. (US 6,034,766). Applicant traverses the prior art rejections in the following manner.

The present invention relates to an image reading method and apparatus. In an exemplary embodiment, an image on an image recording medium is read by a visible light. Additionally, a scratch, a folding mark, or foreign matter such as dirt or dust in an optical path of an optical system in an image reading apparatus is detected by a specified detecting light. The detecting light shares an optical path with the visible light.

Poetsch relates to a film scanner with an illumination device illuminating the film and emitting visible and infra-red light, with an optical device for imaging the film frames after separation into several color components onto a number of optoelectrical converters

corresponding to the color components and with a device for detecting scratches in the film and for masking the scratches in the reproduced video signal.

Sugiura et al. relates to an optical member inspection apparatus for detecting an optical defect, such as an abnormality in shape, in an optical member such as a lens, which may be made by a plastic injection process.

Applicant submits that Poetsch does not teach or suggest all of the limitations of independent claims 1 and 17. Specifically, Poetsch fails to disclose detecting at least one of a foreign matter which adheres and a scratch which exists in the optical path of the visible light based on continuity of change of light quantity data of the thus read specified detecting light. The Examiner refers to page 2, lines 7-25, of Poetsch as allegedly disclosing this feature of the claims, but Applicant disagrees. The cited excerpt states the following:

> To detect scratches in the film 1, there is here a filter disc 19 which consists essentially of a part 21 opaque to infra-red light (see Figure 3) and a strip 22 transparent to infra-red light. The filter disc 19 is rotated by means of a motor 23. By means of a motor control circuit 24 which is regulated by a frame-line detector device 26 and by a position-indicating device 27, it is possible to adjust the rotational speed of the filter disc 19 in such a way that a frame line located in the film gate coincides with the strip 22. The frame-line detector device 26 can be, for example, a tacho-disc coupled mechanically to a sprocket or it can be a perforation light barrier. As a result, the frame lines (Fig. 1, element 2) are each transilluminated additionally with infra-red light which is then evaluated in the video processing circuit 16 connected, for example, to the red converter 13 and containing a defect-masking circuit.

Thus, the cited excerpt is silent regarding the claimed feature of detecting, based on continuity of change of light quantity data of the thus read specified detecting light. Instead, the reference simply discloses rotating a filter disc 19. There is no indication in the reference that

the continuity of change of light quantity data of the read specified detecting light is a basis for detecting.

The detection can be determined by means other than continuity of a light data of the detecting light. As an alternative, the data may be analyzed in conjunction with the characteristics of the visible light (red light) as suggested by Poetsch. The independent claims are not anticipated.

Further, claim 1 recites that an optical path of the visible light is used in reading detecting light to thereby detect a scratch or foreign matter which exists in the optical path of the visible light, but this feature is not disclosed by Poetsch. To be more specific, Poetsch rotates the filter disc 19 so that each frame line 2 (see Fig. 1) coincides with the strip 22 and the optical path for detecting a scratch or foreign matter is different from the optical path of the visible light when reading the visible light in the frame image.

Additionally, because the rotation of the disk prevents the infrared light from shining on the medium, except for instances at frame lines 2, the visible path for reading the image in Poetsch does not comprise the same optical path as the detecting light, as claimed. The paths are separated according to rotation of the disk.

With further regard to claim 17, Applicant notes that claim 17 defines two reading units including a first reading unit for reading an image by visible light and a second reading unit for reading detecting light by making use of an optical path of the visible light. Thus, the first reading unit and the second reading unit are separately provided. By contrast, Poetsch has three reading units for R, G, and B for reading visible light and reads infrared light by the same R unit. There is no second reading unit in Poetsch.

In addition, Poetsch uses the rotating filter disc for reading, and the optical path of infrared light is therefore different from that of visible light. In claim 17, the optical path of the visible light is used by the second reading unit and the first detecting unit, thereby detecting a scratch or foreign matter in the optical path. In other words, the apparatus of claim 17 detects a scratch or foreign matter in an optical system and hence cannot use the prior art filter disc in which the optical path is changed by switching from one filter to the other for passing infrared light therethrough.

Therefore, claims 1 and 17, and their respective dependent claims 2-6, 11-14, 18-22, and 27-30, are not anticipated by Poetsch for at least these reasons.

With further regard to claim 6, Applicant submits that Poetsch fails to teach or suggest a step of issuing an alarm, as recited in the claim. The Examiner refers to page 2, lines 47-60, as allegedly disclosing this feature of the claim, but Applicant disagrees. The cited excerpt discloses that a video signal generated by a red sensor 13 is fed via preamplifier 36 to a video processor 37, in which it is processed in a known way. The excerpt simply does not disclose issuing an alarm. Applicant submits that the general recitation of a video signal does not correspond to an alarm, as claimed in claim 6. Therefore, claim 6 is not anticipated by Poetsch for this additional reason.

For the rejection of claims 7-10, 15, 16, 23-26, 31, and 32 over Poetsch in view of Sugiura et al., Applicant submits that these claims are allowable over the prior art, at least because Suguria et al. fail to make up for the above-noted deficiencies of Poetsch.

With further regard to claim 7, this claim describes first and second reading units, one for visible light and one for the detecting light. The Examiner cites converter 13 of Poetsch to teach

the second sensor. However, Applicant submits that the reading units (R, G, B) of Poetsch each correspond to visible light without a second reading unit for detecting light as claimed. Claim 7 is not anticipated for this additional reason.

Regarding the rejection of claims 33-35, Applicant submits that the combination of Poetsch and Sugiura et al. fails to teach or suggest the first detecting step of detecting a first optical defect existing in an optical system, which reads the image data from the image recording medium. The Examiner concedes that Poetsch does not disclose this limitation of claim 33, but asserts that Sugiura et al. disclose the limitation. Specifically, the Examiner cites col. 11, line 65 – col. 12, line 9 of Sugiura et al., which discloses that when there is a scratch C and/or dust D in the imaging inspection region on the surface of the inspection target optical member 9, and a light ray n diffuses around the side of the light shielding plate 8 on the surface of the diffusion plate 2 and impinges on scratch C and/or dust D, the light n is diffused by scratch C and/or dust D. However, the system and method of Sugiura et al. fail to disclose an optical system which reads the image data from the image recording medium. Instead of disclosing reading an image recording medium, the reference discloses a system for detecting optical defects in optical lenses. See col. 1, lines 5-9. Thus, Sugiura et al. cannot disclose a first detecting step of detecting a first optical defect existing in an optical system, which reads the image data from the image recording medium. As shown in Fig. 1, Sugiura et al. detect optical defects by setting an inspection target optical member in a specified position where light beams intersect. In this detection method, an inspection target optical member is set in a specified position and is subjected to the detection of optical defects, as in the scanner of Poetsch in which a film to be subjected to scratch detection and image reading is set in a specified position for detecting scratches. Sugiura et al. do not

attempt to detect defects in the optical system itself used for image reading, as in claim 33. Therefore, claim 33 and its dependent claims 34 and 35 are allowable over the prior art.

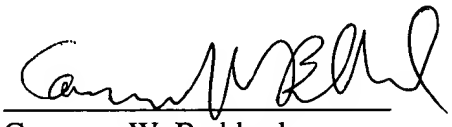
Furthermore, due to the disparate teachings of Poetsch and Sugiura et al., claims 33-35 are allowable over the prior art, because there is no suggestion or motivation to combine the references. Poetsch relates to a film scanner with an illumination device illuminating the film and emitting visible and infra-red light, but Sugiura et al. relates to an optical member inspection apparatus for detecting an optical defect, such as an abnormality in shape, in an optical member such as a lens. In other words, Poetsch is directed to scanning film with an illumination device, while Sugiura et al. is directed to detecting abnormalities in the shape of lenses. Moreover, the Examiner's asserted motivation to combine the references appears to be nothing more than impermissible hindsight reconstruction, based on the Applicant's disclosure. Nothing in the references provides the suggestion or motivation to make the specific combination made by the Applicant. Hence, claims 33-35 are allowable over the prior art, for this additional reason.

Claims 36-38 are added to describe features of the invention more particularly. These claims are allowable at least because of their dependence from claims 1, 17, and 33, respectively.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Cameron W. Beddard
Registration No. 46,545

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: November 17, 2003

Inventor: Toru MATAMA
Appln. No.: 09/657,272
Cameron W. Beddard
Q58745 Annotated Sheet Showing Changes
SM. Tel. No.: (202) 293-7060
SM Fax. No.: (202) 293-7860 



FIG. 1

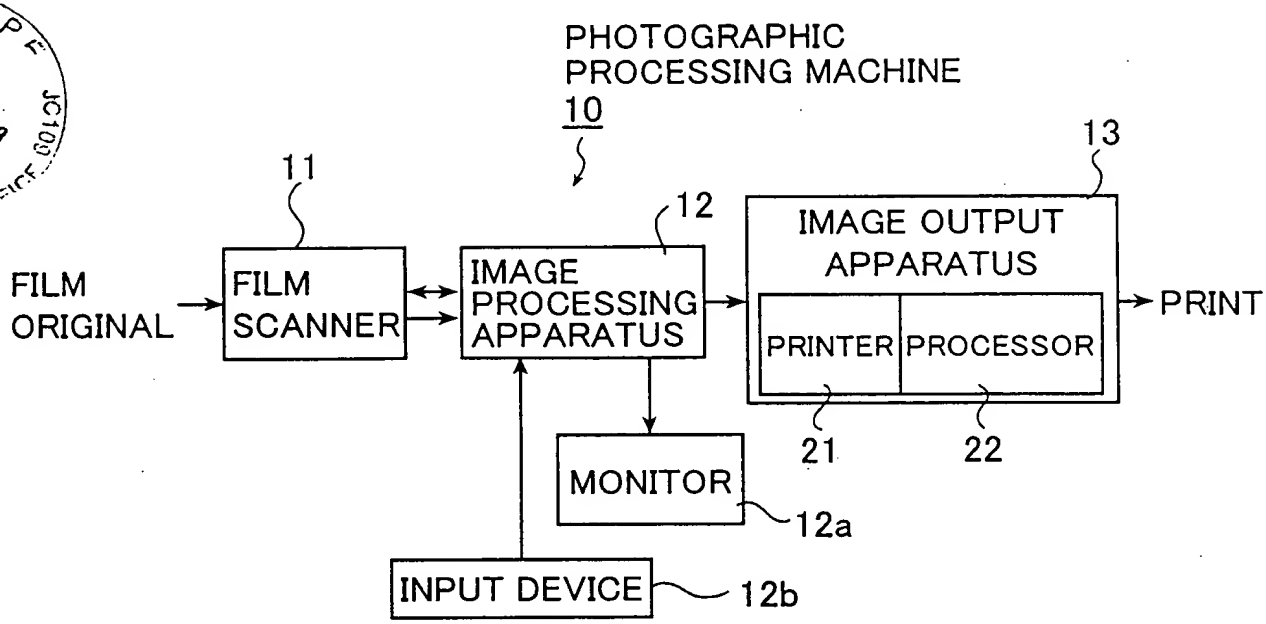



FIG. 2